Because the Office Action made the rejection of the pending claims final, consideration of this response pursuant to the expedited procedure for response after final rejection set forth at 1059 OG 19-20, respectfully is solicited.

REMARKS

The undersigned attorney wishes to thank the Examiner for the courtesies extended during the Examiner's Interview conducted at the U.S. PTO on July 26, 2000 between the Examiner, Dr. John Perkins, and the undersigned. At the Interview, the Examiner agreed that all pending rejections would be withdrawn. Accordingly, this Response is submitted with a view toward the comments in the Interview Summary.

Claims 11 and 21 were rejected under 35 USC §112, first paragraph. Paper No. 19 at 2. In making the rejection, the Examiner contended that the specification does not provide sufficient teaching on deregulating the KAPA-to-DAPA biosynthetic pathway. *Id.* And, that the claims are drawn to a bacterium with a deregulated biotin biosynthetic pathway while the examples provided in the specification are for a lysine biosynthetic pathway. *Id.*

In the Interview, the Examiner agreed to withdraw the §112, first paragraph rejections upon "identification of the disclosed deposited strains." Accordingly, the following information is provided:

Regarding the rejection of claim 11, strains BI282 and BI603 are recited in the specification and have been deposited under the terms of the Budapest Treaty. *See*, Specification at page 24, line 16 to page 25, line 25; and Response to Office Action Including Amendment mailed June 1, 1999 at page 2, line 9, and page 3, line 20 to page 4, line 7. BI282 and BI603 are bacterial strains containing a lysine-utilizing DAPA aminotransferase. These strains are

deregulated with respect to at least one biotin synthetic pathway step in addition to *bio*A expression as recited by claim 11.

For example, the specification recites that BI282, bio::$[P_{15}bio]_{7-8}$, is a *B. subtilis* strain engineered to overexpress *B. subtilis* BioA protein. *See*, page 11, line 32 to page 12, line 2. BI282 over-expresses all biotin biosynthetic genes on a multi copy cassette (P_{15}*bio*) integrated at the *bio* locus. *See*, page 18, lines 30-32. BI603 is a derivative of BI282 containing multiple copies of an additional *bio*A cassette (P_{26}*bio*A) integrated at the *bpr* locus. *See*, page 18, line 32 to page 19, line 4.

Regarding the rejection of claim 21, strains BI90 and BI96 are recited in the specification and have been deposited under the terms of the Budapest Treaty. *See*, Specification at page 24, line 16 to page 25, line 25. BI90 and BI96 are bacterial strains containing both a lysine-utilizing DAPA aminotransferase and a SAM-utilizing DAPA aminotransferase. These strains are deregulated with respect to at least one biotin synthetic pathway step other than *bio*A expression as recited in claim 21.

For example, BI90 (*bio*::$[P_{15}bio]_{7-8}$*sac*B::$[P_{veg}bioA_{ec}]_1$) and BI96 (*bio*::$[P_{15}bio]_{7-8}$*sac*B::$[P_{veg}bioA_{sm}]_1$ are derivatives of BI282 that contain a single copy *E. coli* $P_{veg}bioA_{ec}$ or *S. marcescens* $P_{veg}bioA_{sm}$ cassette, respectively, integrated at the *sac*B locus. *See*, page 19, line 29 to page 20, line 5.

In view of the identification of these strains, the Examiner agreed at the Interview that the rejection is rendered moot. Accordingly, withdrawal of the rejection, respectfully is solicited.

Claims 1, 2, 5-10, and 12 were rejected under 35 U.S.C. § 103(a) as unpatentable in three different rejections, which all relied upon Levy-Schil, *et al.*, *J. Microbiol. Biotechnol.*, 38:755-762 (1993) ("Levy-Schil"), as the primary reference. Paper No. 19 at pages 3-7. In the first rejection, claims 1, 2, 5-7, and 12 were rejected as unpatentable over Levy-Schil alone. *Id.* at page 3. In the second rejection, claims 1 and 8 were rejected as unpatentable over Levy-Schil in view of Yamada, *et al.*, U.S. Patent No. 4,563,426 ("Yamada"). *Id.* at page 4. In the third rejection, claims 1, 9, and 10 were rejected as unpatentable over Levy-Schil in view of Komatsubara *et al.* U.S. Patent No. 5,374,554 ("Komatsubara"). *Id.* at page 5.

As the Examiner agreed at the Interview, Levy-Schil does not disclose or suggest a lysine-utilizing DAPA aminotransferase, and therefore, all rejections based on Levy-Schil must be withdrawn. As discussed in the interview, at least two documents made of record in the Information Disclosure Statement filed February 13, 1998 support this conclusion. (*See e.g.*, Eisenberg, *et al.*, "Biosynthesis of 7,8-Diaminopelargonic Acid, a Biotin Intermediate, from 7-Keto-8-Aminopelargonic Acid and S-Adenosyl-L-Methionine", *J. Bacteriology*, 108:1135-1140, 1136, Col. 2 (1971) [document AI] and Izumi *et al.*, "Characterization of Biotin Biosynthetic Enzymes of *Bacillus sphaericus*: a Dethiobiotin Producing Bacterium", *Agric. Biol. Chem.*, 45:1983-1989, 1986, Col. 1 (1981) [document AO].

Three other documents discussed at the interview also support this conclusion. These documents are submitted concurrently herewith as part of a Supplemental Information Disclosure Statement.

In sum, the Examiner agreed in the Interview Summary to withdraw all §103 rejections in view of the evidence of the state of the art exemplified by the documents set forth

above and the documents submitted in the accompanying Supplemental IDS. Accordingly, withdrawal of all of the §103(a) rejections, respectfully is solicited.

In view of the foregoing, favorable action on the merits including withdrawal of the rejections and allowance of all the claims, respectfully, is requested. If the Examiner has any questions regarding this paper, please contact the undersigned attorney.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231, on August 8, 2000.

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Respectfully submitted,

By: _____

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